CLAIM AMENDMENTS

1. (Original) A method of producing metal fibers, comprising:

melting a mixture of at least a fiber metal and a matrix metal;

cooling the mixture to form a bulk matrix comprising at least a fiber phase and a matrix phase; and

removing at least a substantial portion of the matrix phase from the fiber phase.

2. (Original) The method of claim 1, further comprising:

deforming the bulk matrix.

3. (Original) The method of claim 1, wherein the fiber phase comprises one of a metal and a metal alloy.

4. (Original) The method of claim 1, wherein the fiber metal is at least one of niobium, a niobium alloy, tantalum and a tantalum alloy.

5. (Original) The method of claim 1, wherein matrix metal is at least one of copper and a copper alloy.

6. (Original) The method of claim 1, wherein melting the mixture comprises at least one of vacuum arc remelting, induction melting, continuous casting, continuous casting strip over cooled counter-rotating rolls, squeeze-type casting, and rotating electrode powder melting.

7. (Original) The method of claim 1, wherein the fiber phase is in the form of dendrites in the matrix phase.

8. (Original) The method of claim 1, wherein the mixture is a eutectic mixture.

9. (Original) The method of claim 1, wherein the weight percentage of the fiber metal in the mixture is greater than 0 wt% and less than 70 wt%.

10. (Currently amended) The method of claim ~~8~~ 1, wherein the weight percentage of the ~~matrix~~ fiber metal in the mixture is from 15 wt % to 25 wt %.

11. (Original) The method of claim 2, wherein deforming the bulk matrix includes at least one of hot rolling, cold rolling, extruding, forging, drawing, and other mechanical processing methods.

12. (Currently amended) The method of claim ~~10~~11, wherein the deforming the bulk matrix results in at least one of elongating the bulk matrix and reducing a cross-sectional area of the bulk matrix.

13. (Original) The method of claim 11, wherein the bulk matrix comprises at least one of fibers and dendrites of the fiber phase in a matrix of the matrix phase, and deforming the bulk matrix alters at least one of a size, shape, and form of the fiber phase.

14. (Original) The method of claim 1, wherein removing a substantial portion of the matrix phase from the fiber phase comprises at least one of dissolving the matrix phase and electrolysis of the matrix phase.

15. (Original) The method of claim 14, wherein dissolving the matrix phase comprises dissolving the matrix phase in a suitable mineral acid.

16. (Original) The method of claim 15, wherein the mineral acid is at least one of nitric acid, sulfuric acid, hydrochloric acid and phosphoric acid.

17. (Original) The method of claim 1, wherein after removing at least a substantial portion of the matrix phase, the fiber phase is in the form of a dendrite.

18. (Original) The method of claim 17, wherein the fiber phase is in the form of at least one of a fiber, needle, ribbon, and a rounded shape.

19. (Original) A method of producing metal fibers, comprising:

melting a mixture of at least niobium and copper;

cooling the mixture to form a bulk matrix comprising at least a fiber phase comprising a significant portion of the niobium and a matrix phase comprising a significant portion of the copper; and

removing at least a substantial portion of the matrix phase from the fiber phase.

20. (Original) The method of claim 19, further comprising:

deforming the bulk matrix.

21. (Original) The method of claim 19, wherein the mixture comprises C-103.

22. (Original) The method of claim 19, wherein melting the mixture comprises at least one of vacuum arc remelting, induction melting, continuous casting, continuous casting strip over cooled counter-rotating rolls, squeeze-type casting, and rotating electrode powder melting.

23. (Original) The method of claim 19, wherein the fiber phase is in the form of dendrites in the matrix phase.

24. (Original) The method of claim 19, wherein the weight percentage of the fiber metal in the mixture is from 15 wt.% to 25 wt.%.

25. (Original) The method of claim 20, wherein deforming the bulk matrix includes at least one of hot rolling, cold rolling, extruding, forging, drawing, and other mechanical processing methods.

26. (Currently amended) The method of claim ~~25~~ 20, wherein deforming the bulk matrix comprises cold rolling the bulk matrix.

27. (Original) The method of claim 19, wherein removing a substantial portion of the matrix phase from the fiber phase comprises at least one of dissolving the matrix phase and electrolytes.

28. (Original) The method of claim 27, wherein dissolving the matrix metal comprises dissolving the matrix metal in a suitable mineral acid.

29. (Original) The method of claim 28, wherein the mineral acid is at least one of nitric acid, sulfuric acid, hydrochloric acid and phosphoric acid.

30. (Original) The method of claim 19, wherein after removing at least a substantial portion of the matrix phase, the fiber phase is in the form of a dendrite.

31. (Original) The method of claim 30, wherein the fiber phase is in the form of at least one of a fiber, needle, ribbon, and a rounded shape.

32. (New) The method of claim 1, wherein the weight percentage of the fiber metal in the mixture is from greater than 0 wt % to 50 wt %

33. (New) The method of claim 1, wherein the weight percentage of the fiber metal in the mixture is from 5 wt % to 50 wt %.

34. (New) The method of claim 1, wherein the weight percentage of the fiber metal in the mixture is from 15 wt % to 50 wt %.

35. (New) The method of claim 1, wherein the weight percentage of the fiber metal in the mixture is from greater than 0 wt % to 35 wt %

36. (New) The method of claim 1, wherein the fiber phase has an oxygen content of 1.5 wt % or less.

37. (New) The method of claim 1, wherein the fiber metal has a form prior to melting of at least one of rods, plate machine chips, machine turnings, fine input stock and coarse input stock.

38. (New) The method of claim 7, wherein the dendrites are in the form of tree-like branching dendrites.

39. (New) The method of claim 7, wherein the dendrites have a surface area of at least 2.0 m^2/g.

40. (New) The method of claim 19, wherein the weight percentage of the fiber metal in the mixture is from greater than 0 wt % to 50 wt %.

41. (New) The method of claim 19, wherein the weight percentage of the fiber metal in the mixture is from 5 wt % to 50 wt %.

42. (New) The method of claim 19, wherein the weight percentage of the fiber metal in the mixture is from 15 wt % to 50 wt %.

43. (New) The method of claim 19, wherein the weight percentage of the fiber metal in the mixture is from greater than 0 wt % to 35 wt %.

44. (New) The method of claim 19, wherein the fiber phase has an oxygen content of 1.5 wt % or less.

45. (New) The method of claim 19, wherein the fiber metal has a form prior to melting of at least one of rods, plate machine chips, machine turnings, fine input stock and coarse input stock.

46. (New) The method of claim 19, wherein the fiber phase comprises an alloy comprising niobium, 10 wt % hafnium, 0.7 to 1.3 wt % titanium, 0.7 wt % zirconium, and 0.5 wt % tungsten.

47. (New) The method of claim 23, wherein the dendrites are in the form of tree-like branching dendrites.

48. (New) The method of claim 23, wherein the dendrites have a surface area of at least 2.0 m^2/g.